EXTERMINATORS LOG

JULY 1936 "Don't Tolerate - Exterminate" VOL. 4, NO. 7

SELL "PEST CONTROL"

Make the public "Pest Control Conscious" and aware of the necessity of your invaluable service. At this time of the year pests are the most numerous; newspapers are filled with items regarding their extermination and control.

Keep the public in health and mental comfort and eventually the value of your service will be realized and appreciated—a boost to your industry.

■

JOHN POWELL & CO., Inc.

Specialists in Pyrethrum and Rotenone Products

114 E. 32nd St. **New York, N. Y.**

MOUTHPIECE OF THE EXTERMINATING AND FUMIGATING INDUSTRY OF AMERICA

5 STAR TERMITE SOLUTION

DUE TO THE WIDE ACCEPTANCE AND INCREASED SALES TO THE

EXTERMINATING INDUSTRY

WE ARE GLAD TO ANNOUNCE A

Price Reduction of 33⅓%

Now 50c Per Gallon

IN 55 GALLON DRUMS, F. O. B. NEWARK, N. J.

5 Star Termite Solution

A scientific laboratory compound perfected by our efficient corps of chemists, on Termite infested woods, after years of experimenting with hundreds of formulaes. Leaves an insoluble oleoresinous compound in the treated soil and wood. Made with a light viscosity solvent for easy application. Easily absorbent. USED IN OUR SERVICE FOR TERMITE CONTROL WORK FOR THE PAST SIX YEARS WITHOUT RECURRENCE OF INFESTATION.

Advantages of the 5 Star Method

No Boiling
No Processing
Odorless
Non-Poisonous
Standardized
Non-Toxic to Humans or Pets
Ready for Immediate Use

Facts

100% Kill—100% Preservation and Repelling. Properties—Tested and Approved by the famous Foster-Snell Laboratories of Brooklyn, New York.

Samples—Sent Upon Request—or Buy a Trial Drum and Convince Yourself

Vermitox Laboratories, Inc.

231 HALSEY STREET **NEWARK, NEW JERSEY**

EXTERMINATORS LOG

A Magazine Devoted to a Cause to Which Mankind Is Indebted

Al Cossetta, Manager and Editor | J. W. Smith, Associate Editor

Cooperating With the National Association of Exterminators and Fumigators, Inc.

VOL. 4 | JULY, 1936 | NO. 7

NATIONAL ASSOCIATION OF EXTERMINATORS AND FUMIGATORS

OFFICERS

President.....C. Norman Dold
Rose Exterminator Co., 208 North Wabash Ave. Chicago, Illinois

Vice-President.....Otto Orkin
Orkin Exterminating Co., Inc., Atlanta, Ga.

Vice-President.....Martin Meyer
Theodore Meyer Estate, Philadelphia, Pa.

Vice-President.....H. J. Hammond
W. P. Hammond & Son, Inc., Milwaukee, Wis.

Vice-President.....Wm. Elliott
Roach Exterminating Co., Brooklyn, N. Y.

Vice-President.....J. M. Miller
J. M. Miller's Pest Control System, Inc., Los Angeles, Calif.

Treasurer.....H. K. Steckel
The Tornado Mfg. Co., Columbus, Ohio

Secretary.....William O. Buettner
Oscar G. Buettner & Son, Inc., Brooklyn, N. Y.

DIRECTORS

Dr. E. D. Wilson, New York, N. Y.
J. L. Howell, Houston, Texas
P. C. Cissell, Washington, D. C.
M. G. Jorgensen, Los Angeles, Calif.
Al Cossetta, Kansas City, Mo.
A. E. Ritt, Philadelphia, Pa.
George A. Rader, Berkeley, Calif.
Edward H. Arnott, Indianapolis, Ind.
Max Levy, St. Paul, Minn.
Irving H. Josephson, New York, N. Y.
R. W. Laing, Cleveland, Ohio
B. W. Eldredge, Waltham, Mass.
Walter S. McCloud, Chicago, Ill.
John P. Linn, Omaha, Neb.
Thomas C. Raley, St. Louis, Mo.
J. Mandelbaum, New Orleans, La.
Wm. E. Martin, St. Louis, Mo.
W. F. Smith, Pasadena, Calif.
F. D. Hubbell, Baltimore, Md.
C. R. Lee, Detroit, Mich.
G. York Heystek, Detroit, Mich.

MEMBERSHIP

ACTIVE: Open to any person, firm, association or corporation engaged in the service business of eliminating and/or controlling vermin, rodents, insects, germs, other pests and odors by the process of extermination, fumigation and/or disinfection. Dues $10.00 yearly.

Associate: Open to subsidiary firms of an active member firm engaged in the service work as above described. Dues $7.50 yearly.

Allied: Open to any person, firm or corporation, manufacturing or supplying products and/or materials for use in the exterminating and/or fumigating service trade. Dues $10.00 yearly.

For further details, communicate with
WILLIAM O. BUETTNER, Secretary
3019 Fort Hamilton Parkway Brooklyn, New York

CONTENTS

Editorial 4-5

The California Pest Control Act 6

Termites vs. Government Geologists 8
Chas. W. Kays Termite Service Co.

Powder-Post Beetles and Special Reference to the Family Lyctidae 10
By Olive Falls

The Ants (Family Formicidae) Are on the Way 13

Telling the Public About It 14

Preliminary Tests With Liquid Bait in Japanese Beetle Traps 16
By F. W. Metzger

Additional Patents Relating to Pest Control 18

Local Organization News 20

Picked Up From Here and There 21

Published monthly by The Exterminators Log, 512 East 14th Street, Kansas City, Missouri. Subscription rate in the United States and Possessions $3.00 per year; Foreign $3.50 per year; Single Copies 25 cents; Bundles of 25 copies $5.00. Publishers not responsible for unsolicited manuscripts. No manuscripts will be returned. All contributions intended for publication must be sent in before the first of each month. Three weeks' advance notice necessary for change of address. Both old and new address must be given.

Editorial

Work Where You Are

DURING the last few years, there has been more or less a migration of men seeking employment here and there. In this way, many of our industry have been seeking to establish themselves and to adjust themselves to a new environment. Those who are thus wandering about, here today and gone tomorrow, are not doing our industry any good. Some have the idea that if they could leave their city or community, they would do better. It is true that in occasional instances they help themselves, but most are like driftwood, getting nowhere themselves and impeding the progress of others. It is this class of so-called exterminators that are doing themselves more harm than good and never get very far in life.

It was Abraham Lincoln who understood "the fallacy of the elsewhere" when he wrote his famous letter to his brother who wanted to leave Illinois and move to Missouri. His brother had not done so very well. Lincoln wrote him as follows: "Dear Brother: When I came into Charleston, day before yesterday, I learned that you are anxious to sell the land where you live and move to Missouri. I have been thinking of this ever since and cannot but think such a notion is utterly foolish. What can you do in Missouri better than here? Is the land any richer? Can you there, any more than here, raise corn and wheat and oats without work? Will anybody there, any more than here, do your work for you? If you intend to go to work, there is no better place than right where you are. If you do not intend to go to work, you cannot get along anywhere. Squirming and crawling about from place to place can do no good." These forceful remarks and splendid advice given should help us sense the futility of going to and fro, rather than staying where we are and working.

TERMITES

IT APPEARS that advantage is sometimes taken to enlarge on conditions to the point where skepticism enters, and the result is just the reverse of what it was hoped certain publicity would do. When it comes to Termites, there have appeared articles in the daily press and other publications which have played up the "Termite Menace" to the place where the public, to be sure, is aroused, BUT, in the determination to get at the truth John Public begins making inquiry.

It is said that certain publicity that appeared in one of the large cities of the country a few years back made it necessary for government bureaus to take a position whereby the public had to be reassured that the menace was not as great as pictured. It is only natural that some individuals and firms in seeking publicity exaggerate conditions. Reporters want the unusual for their "copy."

The industry should give some serious thought to publicity, and take a wholesome position of sticking to facts. There is much termite control service work to be had, and it will be done by our industry if the public is given the correct picture, which in turn must be followed up with intelligent service and proper application of chemicals. It is time that some of the pseudo-termite operators be shown up.

The following release from Washington to the News will be of interest to many in that it tells briefly what might be expected by way of reply to inquiries when the inquiries that are directed to the Department of Agriculture have brought stories of gross exaggeration by some of the pseudo-termite operators. Fortunately there are many firms in our industry which are anxious to and do perform termite service control work with a regard for integrity.

TERMITE DAMAGE IS OVERESTIMATED

WASHINGTON.—Fears of termite damage to homes are grossly overestimated, Dr. T. E. Snyder, senior entomologist in the Department of Agriculture, announced in response to scores of inquiries from perturbed home owners.

The termite situation is not getting worse, and the United States has not been invaded by tropical termites. Home owners should, however, examine their places periodically and remove all debris around the place. Care should be taken that the mortar is of the best materials and workmanship, else there may be entrance through it. The easily-seen shelter tubes built by the pests should be broken off from the masonry as soon as discovered. Above mentioned forms of control are preferable to chemicals, Dr. Snyder added. The possibility of there being termites in one's home is very slight.

California and A. A. Brown

IN THIS issue of The Log we publish a controversy that has developed in California with regard to interpretation of the Structural Pest Control Act. It appears to us that there is an attempt to befog the issue. Basically there is the constructive approach on the part of the exterminating industry of California to insist that the public should not be fooled as they have been, and make it necessary for anyone applying any substances for pest control to have a license to do this type of work. There certainly is nothing in the Structural Pest Control Act that prohibits those in other fields from exercising the full functions inherent to such other professions that Mr. Brown would like to have it appear exist.

Whenever such disputes arise, we instinctively begin looking for what might best be termed in slang as "the nigger in the woodpile." Possibly a shoe is beginning to pinch along such directions as preventing the promiscuous use of chemicals by every Tom, Dick and Harry, or possibly what seemed a source of income is now being stopped, and here again rightfully so, in that the public was probably paying for something that meant little or no real relief. Ascribe the criticism to anything

that one desires, the facts in the case seem overwhelmingly in favor of the Structural Pest Control Act that is bringing about a more equitable attitude of the industry toward the public in terms of satisfactory services.

There are the usual cross currents of rumors and other tie-ups that would indicate that there is "a nigger in the woodpile." It is time that the industry assert itself and if the facts as suggested prevail with regard to the rumors and tie-ups, the industry should be informed.

Publicity and How!

THE only purpose of reprinting the following article is to give a suggestion to firms of a type of story that probably could be printed in your local newspapers. It is time that all such articles suggest as this one does that "price" alone is not the factor. There has been entirely too much emphasis on "lowest" price without regard to fair price. This article hints strongly enough that the prices quoted are probably not the lowest.

This article appeared in the Kenmore Independent-Record recently:

ROSE REPUTATION HIGH IN KENMORE

Exterminator Company Guarantees Results to All Patrons

The Rose Exterminator Co., of 725A Brisbane Building, Buffalo, has a reputation as exterminators that extends throughout the entire community and the people from every point of the compass depend upon the advice, information and counsel of the Rose Exterminator Co. From experience people have found that when they have this company do their work the bugs miraculously disappear.

The matter of price has also received attention here for it has become a well established fact not only in Buffalo, but in surrounding territory that the quotations of the firm are always as low as is consistent with sound business. They permit no one to offer greater values just as they permit no one to offer higher quality of service and this happy combination has resulted in large and ever increasing patronage.

The Rose Exterminator Co., H. S. Lewis of Kenmore being manager, guarantees to exterminate rats, mice, roaches, ants, bed bugs, and all other pests.

They retail and deliver their own products and have branches in principal cities. For any further information telephone Mr. Lewis at Cleveland 2414.

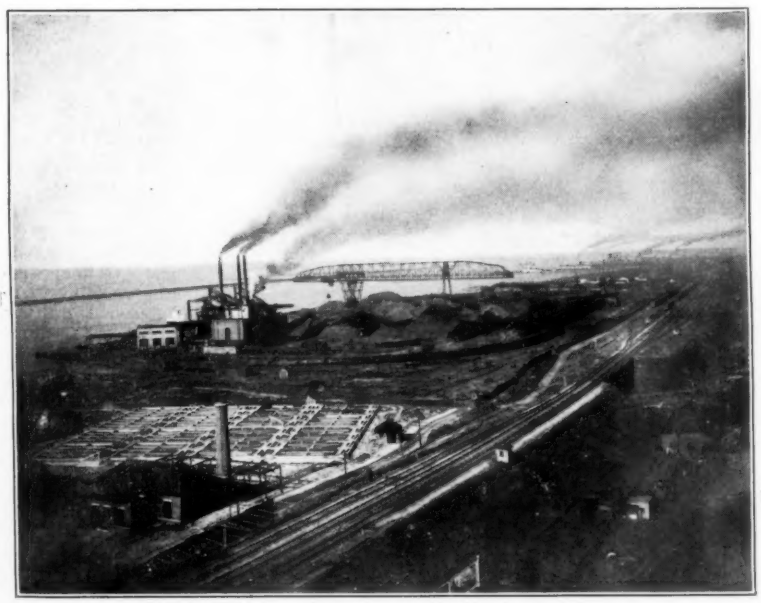
ADVERTISERS!

All convention meetings, activities and exhibits on same floor. Exhibitors afforded every opportunity for practical, convincing demonstrations and sales of merchandise.

Cleveland – The Convention City

OCTOBER 26-27-28

A few of its beautiful scenes



Ore Unloaders

Cuyahoga County Jail and Criminal Courts Building

Rose Gardens at Wade Park

The California Pest Control Act

THE Exterminating and Fumigating industry of the United States naturally is observing the reception with which the Structural Pest Control Act is being accepted by the industry of California as well as the public. The reports thus far received from many in the industry of California are that many abuses are being eliminated. Even those who are not financially interested or engaged in the industry appreciate the protection it has afforded the public. Recently there appeared an article in the magazine "The Architect and Engineer" and through the courtesy of the editor, permission was granted to republish the article. Apparently the article attempts to indict the industry but the straight statement of facts presented by Mr. M. G. Jorgenson, president of the Structural Pest Control Board, certainly makes it clear as to the basic importance of the law and the splendid manner in which it is operating. Following is the article as it appeared in "The Architect and Engineer"—

TERMITE CURB IS IN CONFLICTING HANDS

Pest Control Board vs. Structural Engineers

By A. A. BROWN, C. E.

A member of the Structural Pest Control Board called up a licensed structural engineer recently and informed him that he was doing work without being properly licensed. In this case the engineer had been employed as a consultant by a prominent firm of San Francisco architects to direct the repairs to a structure damaged in part by termites. It was the contention of the official that neither architects nor engineers are properly licensed to undertake the repair or remodeling of a structure involving termite damage. He stated that they should first become licensed under their Structural Pest Control Board before they would be qualified to act as proficient architects and engineers in such matters.

There appears to be some doubt on the part of the Department of Professional and Vocational Standards of the State of California as to the administration of the two laws enacted at the 1935 session of the Legislature dealing with problems created by termites. A few days ago, a representative from that Department called upon the writer to discuss the administration of the present law and to obtain his views on the same. The views at that time expressed are in substance the basis of this article.

The 1929 Legislature considered the problem of termite control and enacted legislation placing the responsibility for supervising contractors engaged in this work in the hands of the Agricultural Commissioners of the several counties. This bill was ill-considered, illogical and unenforcible, and, in consequence, was repealed at the request of the County Agricultural Commissioners at the following session of the Legislature. In 1935 the Legislature enacted two laws, neither of which were carefully considered, placing the responsibility in one case in a newly organized Board to be known as the Structural Pest Control Board, and in the other instance with the Contractors License Bureau.

In the August issue of **The Architect and Engineer,** mention was made of this conflict between the new laws, pointing out that as far as buildings and structures were concerned, they appeared to be a function of the Contractors board. In that case, however, the only qualifications required by the Contractors License Law of those to be licensed as specialists in this work, were that they should submit evidence of good character, honesty and integrity!

Two Groups at Loggerheads

The prevention and control of termite damage has thus become the bastard child of the professional branches of the construction industry. The parentage of this problem-child was first laid at the door of the County Agricultural Commissioners, who promptly disclaimed ownership. Now another group, alien to the building industry, has proposed to adopt the orphan. This group's claim to knowledge of the building industry was summarized in a recent statewide examination, as follows:

> "What is a mud sill? What do you consider the proper mix for cement in a foundation wall for a 2-story dwelling? What is a post butt? What is a joist? What is a girder? Would it be practical to cut an opening beneath the first floor line, above the foundation, in a brick wall 20 inches high and 4 feet long, to remove debris or earth without shoring it up?"

It would seem, however, that under the Contractors License Law they will not be permitted to make off with the child. This latter law as amended by the 1935 Legislature, provides:

> "Section 3. A contractor within the meaning of this act is a person, firm, copartnership, corporation, association, or other organization, or any combination of any thereof, who in any capacity other than as the employee of another with high wages as the sole compensation, undertakes or offers to undertake or purports to have the capacity to undertake or submits a bid to construct, alter, repair, add to, subtract from, improve, wreck, or demolish any building, highway, road, railroad, excavation or other structure, projects, development, or improvement, or to do any part thereof, including the erection of scaffolding or other structures or works in connection therewith, **including the eradication of or the processing against infestation by pests structurally injurious to building or structures. . .**"
>
> "Section 14. All laws, or parts of laws, in conflict with the provisions of this act shall be, and the same are hereby repealed."

Which would seem very definitely to eliminate the Structural Pest Control Board from activities within the building industry.

Constructive Legislation Needed

It seems that by accident and not design the parentage of this questionable child, for the present at least, rests with contractors and builders. With all the welter of discussion and legislation to date, it should be apparent to the professional members of the building industry that the public wants and is demanding constructive legislation on this important subject; but for some reason the legislation proposed and enacted to date has been poorly conceived, with little or no careful thought given to the subject.

Following the disastrous earthquake in Long Beach there was a public demand for the enactment of legislation governing the construction of schools. The public wanted schools that would be reasonably earthquake-proof. In that case, the professional branches of the construction industry gave heed to this demand and prepared legislation in a form which established a minimum requirement, and placed its administration under the department of architecture. The Legislature did not simply pass a law requiring the earthquake-proofing of schools, and stating that contractors building them should earthquake-proof them, but a minimum requirement was laid down as a guide; and so, for a school to be built in the state of California today, it is necessary that the designer meet this minimum set of requirements. He may add to those requirements, but he must not subtract from them.

In the case of the Structural Pest Control law no broad principles have been agreed upon as to what constitutes proper measures for prevention and control; no minimum rules or requirements have been established for methods of eradication; and no provisions have been made in the building laws as a minimum guide for termite prevention.

Need Support of the Professions

As the matter now stands every man licensed is a law unto himself. He writes his own standards, and these vary from the crudest type of palliative to the highest standards of workmanship. Thus, those who desire to do first-class work must compete with less scrupulous operators, resulting in an ever-lowering standard of quality. In view of all this, it seems time, does it not, for the professional members of the construction industry—represented by architects and engineers—to admit parentage of the problem-child, and to aid in the formulation of constructive legislation to govern the same?

It cannot be denied that the demand exists for such legislation, after the two miscarriages of purpose mentioned above. In fact, three unsuccessful attempts have been made by the Legislature to deal with the termite problem. This has not been due to lack of available information on the subject, since extensive research studies have been made and scientific data is at hand for those in the field of applied science to use in setting up standards of construction.

Is this to go by default to an organization alien to the building industry? This is an opportunity for the professions to be of service to millions of citizens. The time elapsing between now and the meeting of the Legislature in 1937 is ample to allow for a constructive study of the problem by a committee composed of architects and engineers representative of the state as a whole, which can be used as a guide by the Legislature and the Department of Pro-

fessional and Vocational Standards in revising existing laws so as to provide the public with the protection and assistance they are so persistently demanding.

MR. M. G. JORGENSON MAKES REPLY

We are pleased to publish an answer made by Mr. M. G. Jorgenson, president of the Structural Pest Control Board.

The April number of the Architect and Engineer published an article by A. A. Brown, C. E., the title of which was "Termite Curb Is in Conflicting Hands—Pest Control Board vs. Structural Engineers."

This article seems to call for a reply in view of the fact that many statements were worded in such a manner as to be misleading, in that it does not present a true picture of the activities of the exterminating industry, nor of the function of the State Structural Pest Control Act as experienced today. The first questions that arise are, "What is the Structural Pest Control Act? What is the purpose of such legislation? What does the Act require? What is the definition of Structural Pest Control as defined in the Act and what are the exemptions?"

It is the concensus of those who have been familiar with the enforcement of the Structural Pest Control Act, and the studying of the Act as passed, that the above questions are answered in plain, understandable language within the wording of the law. However, since the question has been brought up as to its validity and practicability, the following interpretations may serve as an index as to what enforcement agents consider the true analysis of the Act in question:

(a) The Structural Pest Control Act is a law which is intended to regulate, by licensing, the physical operations of exterminating pests, parasites, insects, fungi, rodents, etc., or preventing the habitation of such pests by the use of chemicals or deadly poisons.

(b) The purpose of the law is to safeguard the public by requiring that those persons who apply chemicals are cognizant of the danger to human life in the improper use of insecticides, fumigants, or allied chemicals.

(c) The law requires that every person who engages in the practice of Structural Pest Control shall be licensed unless specifically exempt.

(d) Section 1 defines Structural Pest Control as follows: "As used in this Act, Structural Pest Control includes the use of insecticides, fumigants, or allied chemicals for the purpose of eliminating, exterminating, or preventing infestation of vermin, rodents, parasites, fungi, insects, and any other pests which infest or damage household or other structures."

(e) Certain persons, utilities and agencies are exempt from provisions of the act, all of which are recited in Section 2. Paragraph E of this section reads, "Licensed architects or licensed civil or structural engineers acting solely within their professional capacity."

Now, having stated the scope of the law and salient points relating thereto, we can discuss the next question: "To what extent can an architect or engineer practice Structural Pest Control?"—and for the sake of argument we may include the contractor. NEITHER THE ARCHITECTS', ENGINEERS', OR CONTRACTORS' LAWS AUTHORIZE, EITHER DIRECTLY OR INDIRECTLY, THE ENGAGING IN ANY OTHER PROFESSION THAN THE ONE FOR WHICH HE IS CERTIFIED, REGISTERED, OR LICENSED. NOR DO ANY OF THE LAWS PROHIBIT HIM FROM ENGAGING IN SOME OTHER BUSINESS. HOWEVER, IF HE IS INTERESTED IN ANY OTHER ACTIVITY WHICH IS REGULATED BY A STATE LAW, THEN HE IS LEGALLY OBLIGATED TO RESPECT AND COMPLY WITH ANY AND ALL REQUIREMENTS REGULATING THE BUSINESS OR PROFESSION, REGARDLESS OF WHETHER HE HOLDS AN ARCHITECT'S OR ENGINEER'S CERTIFICATE OR A CONTRACTOR'S LICENSE.

The provisions that architects and engineers are exempt in Section 2 has been broadened beyond their true intent, for the law specifically states, "when acting solely within their professional capacity." The professional capacity of an architect or engineer is generally accepted by the ethical members of the profession as the planning and designing of building and structures or civil engineers' projects, and it is the contractor's function to erect or build. Certainly, if it had been intended that the control of pests was the function of the architect or engineer, such would have been included in the definition recited in each Act.

In the definition of Structural Pest Control, the words "eliminating, exterminating, or preventing infestation" are used.

The architect or engineer is employed by a client for the purpose of designing a structure that will be structurally safe. In doing this he must take into consideration all factors, such as loads, either vertical or horizontal, kind and strength of materials, etc. If, in his opinion, a treated timber, regardless of how or with what treated, or some particular method of construction is advisable as a precautionary measure against infestation of termites, he is morally obligated, to his client, to exercise his judgment in this regard, and certainly he is legally authorized to do so under the exemption provision, but it is not agreed that an architect or engineer has a right, nor that he is within the scope of his professional practice, to advise or specify the use of chemicals or poisons to rid a structure of existing destructive pests or insects, etc.

An architect may plan a hospital, the engineer may design it structurally, and the contractor may build it, but that does not give any of them the right to treat the patients confined therein. It would be just as logical for any of them to step over into the medical profession as it would be for them to prescribe the use of insecticides, chemicals, or deadly poisons in or around a home or structure, since in both cases human life is at stake. Briefly, the law, as contemplated, was not enacted in order that engineers, architects, or contractors should practice Structural Pest Control as defined by the Act, unless such persons held a certificate issued by the Pest Control Board.

The statement is made in the article published that exterminators claim that knowledge of the building industry was summarized in a recent state-wide examination as follows: "What is a mud sill? What do you consider the proper mix for cement in a foundation wall for a 2-story dwelling? What is a post butt? What is a joist? What is a girder? Would it be practical to cut an opening beneath the first floor line, above the foundation, in a brick wall 20 inches high and 4 feet long, to remove debris or earth without shoring it up?"

The impression is given that this was the entire set of questions that had to do with the construction problems in exterminating, which is very misleading, for there were, in addition to these questions, diagrams in which the examinee described the practical way of caring for infestation found in structures under certain conditions, and for the information of the readers it might be well to state that many of these questions originated in the University of California at Berkeley, and were authored by a recognized authority on the subject of termite prevention.

There never has been any conflict between divisions in the Department of Professional and Vocational Standards in the administration of the Structural Pest Control Act.

The Structural Pest Control Act was sponsored by a very representative statewide group of exterminators who are desirous of putting the industry on a basis that would command the respect that is its due, and at the same time protect the public from unethical practices that were creeping into the business. This law is without question the most comprehensive regulatory measure in force anywhere in the United States today, and is being used as a model for several other states in proposed legislation in order that those commonwealths may realize benefits similar to those being experienced in California. In the matter of termite control alone it is estimated that a saving of $500 a day is being made for the property owners of the state of California solely through the Structural Pest Control Act, in that it is eliminating poor practice, itinerant operations, fraudulent claims at the time of inspection, and inadequate work after contracts have been consummated. It might be well, perhaps, to call attention to the fact that the article in question was based entirely on the subject of termites. The Structural Pest Control Act, however, regulates all types of exterminating, and anyone taking an examination for class A, which embraces all classes of work, writes tests in eleven subjects, termites constituting only one subject in the test.

Standardization of methods is a granted need. Standardization of chemicals is already taken care of by the Economics Poisons Act.

There is no question that the Structural Pest Control Act has, in the short time of its operation, proven very beneficial to both property owners and honest exterminators throughout the state. Most individuals, banks, and loaning organizations now require an inspection of structures and a report of same by an experienced and competent termite operator before loans will be considered.

In summarizing, it is safe to say that any individual interested in the welfare of the state will assist in enforcing any present law that has been passed for the good of the people and will assume a helpful attitude rather than one of destructive criticism.

RIGHT DOING

Do that which is right. The respect of mankind will follow; or, if it does not, you will be able to do without it.—Goethe.

"Criticism is easy, art is difficult."

Termites Vs. Government Geologists

CHARLES W. KAYS TERMITE SERVICE COMPANY
Los Angeles, California

IN A northeasterly direction from the city of Los Angeles lies a section of the desert known as The Devil's Playground. It is about 300 miles the way we have to go by auto to reach this Satanic headquarters. The city bred and reared might well wonder why any sane person would drive so far to see such country. But to the lover of the great out of doors all places have interests that are drawing more and more customers every year.

Tubes by Chas. W. Kays.

Subterranean Termite Tubes built up through the dry hot sand, extending about 12 inches above the surrounding sand. This picture was taken in the desert known as the "Devil's Playground," in Eastern California.

The magnet that drew ten members of the Los Angeles Camera Club on their second trip to this land of the horned toad, tarantulas and the sidewinders, were the wonderful sand drifts, molded into beautiful curves, and many other fantastic and interesting formations, all chiseled and etched as only Nature's wind can sculpture them. (Those of our profession who are interested in photography or art may see, during this year or next, some of our desert pictures, some, perhaps representative of the results of the trip under discussion. They will be hung in the All American Salons which are to be in the larger cities of the United States.)

These sand hills are some fifteen to twenty miles in length, three to four miles in width at their base, and are reported to be 800 to 1000 feet in height. They extend from a northeasterly to a southwesterly direction. Paralleling them on the south is a range of mountains, some thousand feet higher than the dunes. Across this narrow valley to the north of them is another parallel mountain range. Both of the ranges are covered with small scrub timber and scattering brush. Most of the soil is black and heavy.

And now for a delayed explanation for the above caption: Several people in that section, and these include some of the oldest "Desert Rats," told the writer that reports by Government geologists state these dunes are sand from their top down to the floor of the valley. We never have seen these reports, and we doubt their existence. However, if there be such reports we must take issue with them, and the lowly termite is the mechanic to act as our witness.

Introducing the witness, Mr. Termite: The five of us who made the "shooting" trip to these higher dunes, drove from our camp at Kelso by a circuitous and tortuous route, some 22 miles, which brought us to the south and steeper side. From their base it was about a mile distant to the top, and as usually is the case, distance lent enchantment to the view, for there appeared the more appealing curves, ridges and drifts. We started for the "High Stuff." When within about 100 to 150 feet elevation from the top we stopped to examine a peculiarly shaped mound of black earth that had been pushed up through the sand. This earth was about one foot in irregular diameter and about one foot in height. It took only the second glance for an old hand at the termite game to recognize the handiwork of our friends. We kicked a side off the mound and found the runways full of subterranean termites. Truly, it was a great shock to us. One confusing thought after another soon had us groggy. It just couldn't be true, yet there they were. From advance information we had reason to believe that we were standing on at least 700 feet of sand, and if that were true, then not even by the wildest stretch of our imagination could we bring ourselves to believe that any type, breed or brand of termites could project these tubes of heavy black adobe soil upwards such a great distance. We will admit this termite thing had us groggy. We still are. However, we have one firm conviction and that is that somebody is misinformed, hallucinated, cockeyed, or screwy, and we'll lay our last adobe dollar that it isn't the termite. We will readily admit that after working with termites for about five years we thought we had learned something about them, but in the other five years to follow we have come to the conclusion that they have made monkeys of most of us operators.

And, in closing, the question still is: "Are these great dunes composed of sand only, from their top to the valley floor level, or is there a lower mountain range which has been completely submerged by these drifts?" The writer holds to the latter thought. The question must be settled, so when some of you Eastern operators come to Los Angeles for a visit, which you are doomed to do, sooner or later, the writer will be glad to load up the old prairie schooner with plenty of grub, water and a few shovels, and we'll proceed to dig us some holes in these dunes. We'll follow those tubes to solid ground, and it is my guess we won't have to go deeper than a very few feet. I feel that we will uncover us a sand submerged mountain range. What's your guess?

Picture by Ownen Schrader, President Los Angeles Camera Club.

Top of the hot sifting sand dunes in the heart of the "Devil's Playground."—California.

Leeva Lodge

A Paradise of mountains and meadows,
Wild Lilac, Live Oak and Pine;
With mistletoe high in the branches
That support the clinging grape vine.

Where a babbling brook clear as crystal,
Winding its way to the sea,
Sings a song of glorified nature;
To the birds and the humming bee.

Where a waterfall seems so impatient
To be over the cliff and away.
While in deep shady pools down below it,
The trout seems contended to stay.

And there just beyond are the meadows,
All buttercup yellow and green;
Where fatted cattle are grazing.
Oh surely this must be a dream.

The sun is now slowly sinking.
Trees and breeze croon a lullaby.
Wild flowers nod their heads in slumber.
As a moon appears in the sky.

We begin to feel quite chilly,
As dew falls on trees and flowers;
So off to the cabin we scamper
To spend the evening hours.

There we find a massive fireplace,
Crackling pine logs all aglow.
Where all the comforts of city life
Our hostess, on us, does bestow.

So modern in all its comforts,
In nature, yet so real.
So this toast to Leeva Lodge I write,
In trying to tell how I feel.

—*Irene Miller.*

EDITOR'S NOTE: *Our guess is that Mrs. J. M. Miller wrote this poem with a two-fold purpose in mind in that she is enthusiastic about the 1938 Convention of the National Association of Exterminators and Fumigators meeting in Los Angeles. It is also said that J. M. Miller had something or other hidden in the creek that must first be consumed.*

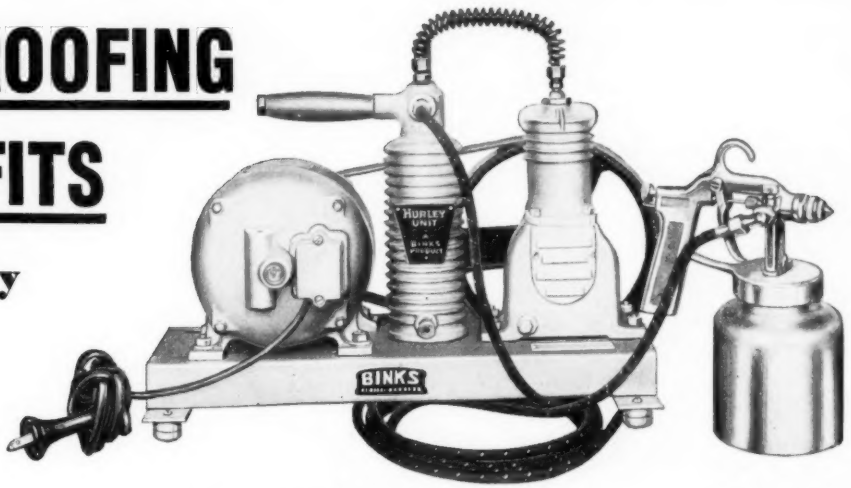
The reason so few reach the top is because no successful method has yet been devised by which a person may sit down and slide up hill.

"He who sows courtesy reaps friendship and he who plants kindness gathers love."

MOTH PROOFING OUTFITS

Binks Hurley Unit

This Outfit is popular because it can be easily carried from house to house and plugged into the nearest light socket. The Hurley Unit can be used for mothproofing the inside and outside of garments, upholstered furniture, and all other objects. Now is the time to do away with slow, expensive hand methods and modernize with BINKS equipment.



Binks ¼ H.P. Hurley Moth Proofing Outfit Weighs only 47 lbs. Price..... $52.95

Same Outfit as Above With the Addition of a 2 Gallon Pressure Tank - Binks C¼ET Outfit, Complete..... $83.55

Binks Hurley Special Unit

The 2 gallon Pressure Tank can be used on large jobs which require more moth proofing fluid; saves time on filling the quart cup. The quart cup is also furnished, however, for smaller jobs.

Binks Model X.M.P. Outfit

Furnished with the hollow needle shown on the gun and three (3) extra nozzles giving round, flat, and angle sprays. The handy angle spray allows operator to spray up, down, or sideways without tilting the gun.

Investigate! Write Today!

Model X.M.P. Outfit, Complete..... $16.40

BINKS MANUFACTURING COMPANY

3124 CARROLL AVE. CHICAGO

Powder-Post Beetles, with Special Reference to the Family Lyctidae

OLIVE FALLS, Entomologist, Terminix Division, E. L. Bruce Co., Memphis, Tenn.

EDITOR'S NOTE: *This paper is a summary of research work on Powder-Post Beetles. It was prepared especially for laymen and scientists who do not have time to read the many scattered articles on the subject. Most of the information has been taken from bulletins of the U. S. Department of Agriculture by Dr. T. E. Snyder, Dr. A. D. Hopkins, Mr. E. J. Kraus, and R. A. St. George. However, the greater part has been verified through research by the author and some points are original with the author. The writer of the article, Miss Olive Falls, is a graduate of Kansas State College, and associated with E. L. Bruce, Terminix Division, as consulting entomologist. Miss Falls specializes a great deal in termites, having begun her study of termites with Dr. Alfred E. Emerson at the University of Chicago. Her training as a biologist and experienced teacher gives her the natural aptitude for the research work which is constantly a part of her work with E. L. Bruce Company.*

INSECTS which come under the heading of powder-post beetles belong to three closely related and associated families (Anobiidae, death watch beetles; Bostrichidae; and Lyctidae, true powder-post beetles). They all have somewhat similar life histories and all are more or less harmful to seasoned wood. The larva (grub), which is one stage in the life cycle, reduces the wood to a condition of powder. Hence the common name powder-post beetle. This fine powder is the undigested portion of their diet. The beetles themselves, as well as their work, are somewhat distinctive, and can be easily distinguished.

Lyctidae Family, True Powder-Post Beetle

The members of the family Lyctidae are readily distinguished from the members of the other two families (Anobiidae and Bostrichidae) by their short clubbed antennae, much elongated first ventral segment, linear form, and small size. The beetles themselves vary from one-eighth to nearly one-half inch in length. The various members of this family breed in the dry wood of a great number of broad-leaved trees, but apparently they have a preference to the seasoned sapwood of hardwoods, such as hickory, ash and oak. They normally breed in the same piece of wood generation after generation, finally reducing most of the interior to a pulverized condition.

These beetles cause excessive losses to the seasoned sapwood of hardwoods, especially hickory, ash and oak. Next to termites, members of the family Lyctidae are the most injurious of all insects to seasoned wood products.

The beetles themselves, as well as their damage are often confused with termites and termite damage. Beetles, however, differ very much from termites both structurally and biologically, and their damage can be recognized easily when one knows the life history of these insects and a few distinguishing characteristics of their damage.

The family Lyctidae is a small one, containing but a few genera, and a limited number of species in each genus. Most of our species of powder-post beetles belong to the genus Lyctus Fab. of this family.

The species of the genus Lyctus Fab. are commonly called Lyctus powder-post beetles.

Lyctus Fab. Genus
(Lyctus Powder-Post Beetle)

The adult beetles (Fig. 1) of this genus are cylindrical, reddish brown to black, hard shelled, winged insects. They average less than one-fifth inch in length. The antennae are short with a definite club, and the first ventral segment is much longer than the second. There are 26 species of the genus Lyctus Fab. scattered throughout the tropical and temperate countries, and at least six of these are found in the United States.

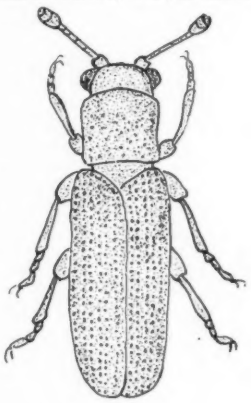


Fig. 1
Adult Powder-Post Beetle

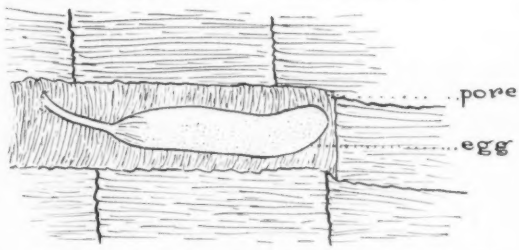


Fig. 2—Lyctus Powder-Post Beetle Egg in the Wood Pore

Life History

The different species of the genus Lyctus Fab. vary somewhat in their habits and seasonal history yet there is a general similarity.

The Lyctus powder-post beetle passes through four states in its development from the egg to an adult beetle (Table I).

In the spring and early summer (April 15 to July 15), the winged adult beetles eat their way to liberty from the pupal chamber, located in the wood, producing by doing so, the characteristic "shot-holes" seen in the damaged wood. Soon after emergence mating takes place and the female deposits her eggs in the same wood, or she may oviposit (lay eggs) on other lumber. The eggs are deposited in the surface pores of the wood, usually at several points. The beetles seem to prefer to oviposit in the sapwood of lumber which has been cut so that the open ends of pores are most abundant.

The Lyctus beetles always confine their activities to the sapwood, and heartwood is never attacked, although heartwood is sometimes penetrated when the adult beetles emerge from the pupal cell in the wood.

The eggs are cylindrical, rounded at one end, with a process attachment at the other end (Fig. 2). The eggs are attached to the walls of the pores or wood cells by their process attachments (Fig. 2). The eggs are whitish in color, somewhat shiny, and so minute that they are only just visible to the naked eye. An egg is .750 mm. in length, and .175 mm. in width. The process attachment is .250 mm. long. In about ten days the eggs hatch into larvae, (small worm-like grubs) which burrow through the wood and feed until the following spring (Fig. 3). The insects confine their work to sapwood, and by the time

(Continued on Page 12)

TABLE I

Stages in the Life Cycle of Lyctus Fab. Powder-Post Beetle

Stage	Duration	Season*	Location in the Wood
Egg	About 10 Days	Middle of April to Middle of July	In surface pores of wood — deposited there by female.
Larva	9 to 10 Months	First of May to Following April	Burrows in the sapwood — deep in the wood.
Pupa	About 6 Weeks	First of March to Middle of June	In enlarged cells near the surface of the wood — ready to emerge from the wood as adults.
Adult Beetle	2 to 4 Weeks	Middle of April to Middle of July	On exterior of wood. Here the females insert their eggs into the pores of the wood by means of their long, slender ovipositors.

*The seasons shown are the general period for most species of Lyctus beetles. However, the seasons vary with the species, geographical distribution and the temperature in storerooms, and there may be greater extremes, for example, the adult and egg-laying season for some species has an extreme of from the middle of February to the end of September. This would likewise alter the season for the other stages.

the larvae are full grown they have caused considerable damage to the interior of wood.

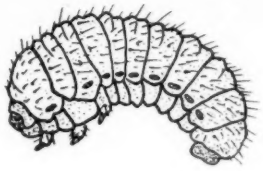


Fig. 3
Larva of a Powder-Post Beetle

The beetles pass the winter as larvae (grubs) in the wood. During cold weather they are more or less inactive. Therefore infestation is often unnoticed during this period except where infestation is located in wood and in heated buildings.

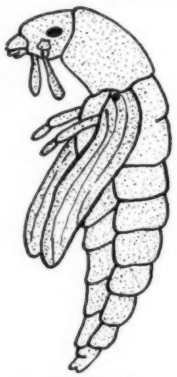


Fig.4—Pupa of a Powder-Post Beetle

In the early spring (March 1 to May 15), the larvae cut relatively large chambers, in which they pupate (go into resting stage, Fig. 4). The winged adults emerge in about six weeks (April 15 to July 15). Thus the life cycle is completed. Within a few days the females deposit their eggs and another generation is begun. There is but one generation a year.

Characteristics of the Injury

The Lyctus powder-post beetle is destructive in both its adult and larval stage. As the boring is done almost entirely by the larvae (grubs) and in the interior of the lumber, the presence of these insects may pass unnoticed until the emerging beetles (adults) leave the wood through their characteristic "shot-holes."

Infested wood may be detected by the fine, dust-like powder (borings) found on or beneath piled or stored seasoned hardwood products. During the first year of infestation the powder comes from exceedingly minute holes in the wood, but after the life cycle of one generation is completed, the injury of the larvae can be detected by the loose, whitish, dust-like powder which may be found around and below the circular openings ("shot-holes") from which the adult beetles have emerged.

The presence of the "shot-holes" in lumber is evidence that the beetles have been in the lumber at least as long as the life cycle of one generation. Therefore the infestation is a year or more old.

Conditions Favorable for Attack

The Lyctus beetles attack only the sapwood of certain seasoned hardwoods. Second-growth sapwood, which has large pores and is well seasoned is particularly liable to attack. It is believed that in the process of seasoning, as the water content is reduced, the starch content of the wood becomes available to the beetle. The starch content of the wood is perhaps the source of attraction of the beetle. Usually it takes eight to ten months of air drying before the lumber is subject to attack by these beetles. Kiln dried lumber may be infested soon after it is removed from the kiln, if the moisture content is reduced to 12% or lower. Softwoods are never attacked by Lyctus beetles, and their damage in hardwood is confined to the sapwood.

The Four Species of Lyctus Fab. Responsible for Most of the Losses to Hardwood in the United States

As previously stated there are at least six species of Lyctus beetles in the United states, but the Southern Lyctus, European Lyctus, Western Lyctus and Velvety Lyctus are the four species responsible for practically all the losses to hardwoods in this country.

Southern Lyctus
(Lyctus Planicollis Le Conte)

Color: Pitchy black.

Length: One-tenth to one-fifth inch.

Characteristic Markings: Small, fine, deep punctures in double rows on the wing covers. Prothorax entirely punctured or front part smooth and back punctured. Females are larger than the males.

Distribution: Southern Atlantic and Gulf States to California, Arizona and Nevada.

Emergence of Adults: From the middle of February to last of September. Most of the beetles emerge from the middle of April to June.

European Lyctus
(Lyctus Lunearin Goozo)

Color: Rusty red-brown.

Length: One-tenth to one-fifth inch.

(Continued on page 13)

Better Jobs Mean Bigger Profits!

For Fumigation use Zyklon Discoids

This handy, packaged fumigant gets 100% results—the *first* time. No fuss, no bother—no chemicals to mix—no dust to handle. Just scatter a few Discoids into space to be fumigated. The penetrating gas goes to work immediately—gets all pests—wherever they may be. Send for "Zyklon Discoids Fumigation Manual"—FREE.

For Rat Control use Cyanogas

This powerful gas-producing powder kills rats instantly. NOT A BAIT! Equipped with the Cyanogas Foot-Pump Duster and a supply of Cyanogas A-Dust—you're all set for the big, profitable jobs—markets, restaurants, warehouses. For helpful information on making profits in fumigation and rat control, write

SPECIAL OFFER: $6.00 Foot Pump Duster for $4.50 postpaid. Best duster sold. Specially designed for Cyanogas—will last indefinitely. Send check or money order.

AMERICAN CYANAMID & CHEMICAL CORPORATION, Insecticide Department
30 ROCKEFELLER PLAZA, NEW YORK, N. Y. • DWIGHT BLDG., KANSAS CITY, MO. • AZUSA, CALIF.

Characteristic Markings: Large, shallow, round punctures on the wing covers, which are placed in single rows.

Distribution: The states north of Carolina, Tennessee and Arkansas. (Maine, Massachusetts, New York, Pennsylvania, Virginia, West Virginia, Ohio, Indiana, Illinois, Missouri, Iowa, Michigan, Minnesota, Wisconsin), and Europe.

Emergence of Adults: From the first of March to August. The peak of emergence from April to June.

Velvety Lyctus

(Lyctus Parallolopipodus Molsheimer)

Color: Rusty red-brown to black.

Length: One-twelfth to one-sixth inch.

Characteristic Markings: Very fine, obscure punctures, not in rows, and long, dense, fine yellowish hairs on the wing covers, which lie close to the body.

Distribution: Texas, Louisiana, Florida, Georgia, South Carolina, Virginia, West Virginia, District of Columbia, Long Island, New York, Ohio, Missouri.

Emergence of Adults: From middle of March to last of August. Peak of emergence from June to July.

Western Lyctus

(Lyctus Cavicollis Le Conto)

Color: Rusty red-brown.

Length: One-seventh to one-fifth inch.

Characteristic Markings: Very fine punctures in more or less double rows. Prothorax is rectangular at back, shiny and never punctured.

Distribution: California.

Emergence of Adults: April to middle of September.

Temperature Fatal to Lyctus Powder-Post Beetles

(United States Government Reports)

Dry Kiln

Temperature necessary to kill the egg, larva, pupa and adults, where the humidity does not reach the saturation point, is 180° F., and must be maintained for a period of at least one-half hour after the ordinary kiln-drying operation.

Live Steam and 100% Humidity

Temperatures of 130° F. and upward in a saturated atmosphere, if maintained for 1½ hours, or longer, after all parts of the wood have been brought to the kiln-drying temperature (130° F.). The period of time necessary for the wood to reach this initial temperature varies with the thickness (Table 2).

The Can't Man

There is a smart little catch in that short little rhyme about "It Couldn't Be Done."

You recall how the rhyme runs along about somebody who said "It Couldn't Be Done," and how a certain individual chuckled inside and with a grin buckled right in, and how he would sing as he tackled the thing, and how he finished the thing that "couldn't be done" and all that.

That rhymster reasoned that it "couldn't be done" until the thing was done. You see the difference?

No sane, sensible writers dare say: "It can't be done." No man with reason will repeat so silly a statement, for as soon as there is a pressing demand for something, genius, which is hard work, gives us that something.

"It can't be done!" The point is: Who will be the one to do it? Will it be you, or will it be the man with a broad grin who buckles right in and does it? Today we can the "can't" man.

TABLE II

The Time Required to Kill All Stages of Lyctus Beetles in Woods of Various Thickness, by Applying Live Steam, in a Saturated Atmosphere

Thickness of Timber	Initial Temperature	Time Required to Reach 130° F.	Time Then Held at 130° F.	Total Period at 130° F.
1-inch	130 Degrees	1 Hour	1½ Hours	2½ Hours
2-inch	130 Degrees	2½ Hours	1½ Hours	4 Hours
2½-inch	130 Degrees	3¾ Hours	1½ Hours	5¼ Hours
3-inch	130 Degrees	5 Hours	1½ Hours	6½ Hours

A Cordial Welcome Awaits You in Cleveland

AT

HOTEL STATLER

EUCLID AT EAST 12TH STREET

HEADQUARTERS

FOR THE

FIFTH ANNUAL CONVENTION

OF THE

NATIONAL ASSOCIATION OF EXTERMINATORS AND FUMIGATORS

October 26, 27, 28, 1936

The Ants (Family Formicidae) Are On the Way

EDITOR'S NOTE: *This contribution by Robert B. Loibl, Sr., of Ant-B-Gon Products Co., of Los Angeles, California, will prove interesting to many readers. Should there be questions you would like to ask on this subject, we are sure that Mr. Loibl will be pleased to assist you. He may be addressed at 2016 Bellevue Ave., Los Angeles, Calif.*

From the Arctic to the Tropics,
From the Mountains to the Sea,
From the shifting sand of the Desert
To the deepest Tropical Forest.

MUCH has been written about these insects, lifetimes of study have been devoted to them and yet much has to be learned by the profession in its battle against their encroachment on human habitations.

Early comprehensive literature was written on the subject of ants by Gould in 1747 and Lubbrock in 1812.

The names of some United States writers on the subject are Buckely, Miss Fielde, Leiby, Linzedum, McCook, Pricer, Miss Treat, Turner, and Prof. Wheeler, who wrote that most important work, "ANTS, Their Destruction, Structure, Development and Behavior." Likewise the most comprehensive European contributions are those of Foret and Emory, with over 100 publications. All of these researches, in addition to the valuable work done by the Entomological Staffs of various Colleges, Government and State Agencies, have paved the way for us to meet the ever increasing hordes with increasing efficiency.

Ants are a social insect. There are no solitary species. Each colony consists of three casts—the male, female or queen, and the workers. The last named are all modified females or polymorphic and they are wingless. Males and females are sometimes winged but always deciduous.

Colonies range from a few dozen to hundreds of thousands. The mode of nesting varies from underground excavations to mounds, hollow trees, under rocks and other objects, nests in trees and cavities of living plants. Eggs of larvae are stored in chambers and are moved about to take advantage of moisture and temperature.

Large swarms of winged ants indicate recently matured males and females that have emerged at the same time from many different nests of their particular species that exist in the immediate region. The object of their flight is matipg. The pairing of males and females from different nests thus prevent close inbreeding.

As we are interested only in ants of domestic importance, we will not attempt any description of the thousands of species in existence, but will confine this discussion to **PUBLIC INSECT ENEMY No. 1**, the Argentine Ant (Iridemyrmex-Humilis). This is an introduced specie which has become an exceedingly serious pest in the Gulf States, California and 18 other states. The damage done by these pests are of two kinds, first as a household pest entering and over-running dwellings, contaminating foods wherever exposed; they are also dangerous to orchards and ornamental plants due to the fact that they protect Aphid, Coccides and Scales. In order to secure the honey-dew that they excrete, ants will drive away the insect enemies of these pests, with the result that the Aphid multiplies to an abnormal extent.

PUBLIC ENEMY No. 2. The little yellow red grease ant (Monomorium-Pharaonis), which is the most troublesome of all ants that invade dwellings. They build their nests within the walls or beneath the foundations of a house whence it is almost impossible to dislodge them. The fact that their food consists of insects or rodent cadaver, or other fattish substance, bait has to be made in accordance to their diet.

PUBLIC INSECT ENEMY No. 3. The Harvester Seed or Agricultural Ant exists in the warmer regions of the Southwest. The actual harm being done by these pests is of a prankish nature. We have had occasions to treat for Seed Ants in Nurseries from which the seed sown by four men during one day was all removed from the soil and piled against the side wall of the beds. The fact that they feed on seeds brings control measures down to one method, that is, extermination of the nests.

CARPENTER ANT. The only woodboring ant (Camponotus Herculeanus), is the largest of our common ants. It is the large black specie that builds its nest in the timbers of buildings located in the wooded sections, logs, trunks and stumps of trees. Frequently it builds in the dead heart of living trees, excavating a complicated series of chambers.

TAYLOR ANT. Of great interest is the Taylor Ant of India, which concocted with curry and rice serves as a tid-bit for the natives. They sew leaves together with silk spun by grubs to make the nest. Their bites are vicious and will frequently leave the head in the wound when extracted.

Caterpillar Horde Proving Grave Menace

Millions of Insects Stripping 8,000-Square-Mile Ontario Area

HIGHWAYS ARE SLICK

Trains Are Stopped; All Available Foliage Is Eaten

Sudbury, Ont.—An invasion of northern Ontario by millions of caterpillars, which already have stripped forests of foliage and even stopped railroad trains, continued unabated Monday while authorities frantically sought means of combatting them.

School teachers armed pupils with brooms and devoted regular periods during school hours to sweeping the walls and roofs of the buildings. But the caterpillars swarmed back again.

Crawling in massed millions along railroad tracks, the insects stopped several trains. Rails became so slippery that engines were unable to gain traction on even slight grades. Crews split trains into two parts, hauling first one section, then the other over the grades.

The pests even crossed rivers.

Residents over a 175-mile front sought desperately for an effective means of stemming the advancing tide which was beginning to cause grave crop and property damage.

Government agricultural officials said it was impossible to estimate the damage already done. The insects are eating their way over an area of nearly 8,000 square miles.

The caterpillars, known officially by their Latin name of Malacosoma disstria, live only about two days, but breed rapidly. Popularly they are known as "tent caterpillars."

Tree foliage has suffered most, to date. Literally hundreds of thousands of trees have been stripped bare. For miles no sign of foliage can be seen.

Caterpillars have appeared in northern Ontario before, but never in such tremendous numbers. Swarming over the highways they make travel difficult, turning the road into slippery, greasy surfaces making high speeds unsafe.—K. C. Journal-Post.

Chinch Bugs Invade Fields Near Nevada

Nevada, Mo. — Farmers in this vicinity are battling the worst invasion of chinch bugs ever known in this section of the state, according to L. W. Doran, emergency county extension agent.

Both dust and oil barriers are being used to combat the insects, which are coming out of the rye and wheat fields to infest the corn.

"With the continuance of the hot, dry weather, farmers are confronted with another pest, the grasshopper," said Mr. Doran, "which will seriously injure the corn, too."—Kansas City Journal-Post.

Beetles Carry Headlights

Government Entomologists Welcome South American Insects

Large beetles with headlights are included in nature's strange assortment of creatures in Central America and Northern South America. Department of agriculture entomologists who have found the young of these beetles valuable because they eat white grubs which seriously damage sugar cane say the beetles are so luminous that one in a dark room will give enough light for reading a newspaper.

The insect's headlights are on the top forepart of its body and consist of two luminous spots. There is, however, another luminous area on the under side of the beetle which is exposed when the beetle flies and which throws a brilliant spot of light on the ground.—From the Pathfinder.

Telling the Public About It

EDITOR'S NOTE: *With the last issue we have started what we hope to be a series of short articles which at all times will be accompanied by cuts to give the industry at large concrete suggestions as to material being used in advertising campaigns or promotion work. The contribution this month comes from Lawrence W. McKenna of the A. C. Exterminating Co., of Cleveland, Ohio. Our appreciation is expressed to Mr. McKenna for his cooperation. Incidentally, Larry is Chairman of the Entertainment Committee that has many interesting features in store for those attending the Annual Convention of the National Association of Exterminators and Fumigators that will be held at Hotel Statler, Cleveland, Ohio, next October 26-27-28.*

THE A. C. Exterminating Company of Cleveland, Ohio, has a series of four attractive four-page folders that measure five and one-half by seven inches, easily inserted with letters or other correspondence. The front cover in each case is as indicated by the accompanying cut. The only other printing in each case is on what would amount to page 3, thus leaving plenty of space as well as short snappy messages.

For purposes of reference, may we print in its entirety the material that is contained on the inside page in each case:

THE LADY SAID "UGH"

When a lady says "UGH" in that tone of voice on your premises it costs you money.

A serpent tempted Eve—something that a cockroach could never have done. Eve's daughters despise the serpent because he double crossed her. The cockroach would have chased her out of Eden quicker and would have needed no apple to turn the trick.

Between the serpent and the roach, most women would let by-gones be by-gones and choose the serpent.

The same goes for rats, mice, moths, bedbugs, ants. Their presence in your place of business or your rented property is a financial blight that can only be overcome by getting rid and KEEPING rid of the source of the trouble.

That is the purpose of the economical A-C Service Plan, something you can learn all about by giving us a ring.

THE A-C EXTERMINATING COMPANY
Chester at 17th Main 3338

IT'S EASIER TO KILL PESTS *THAN KILL GOSSIP*

If you start denying that your place of business is infested with roaches, rats, mice, moths, etc., your denial will never catch up with the original rumor.

Better make absolutely sure in advance that pests will never gain a foothold. That means adopting the economical A-C service plan.

A neat, framed notice that your premises are protected by A-C Service is the surest way to see that gossip never starts. If you are renting apartments, it means tenants will phone US, not you, when they see indications of pests.

Stores, factories, hotels, restaurants—yes and homes simply can't afford the name that goes with pest conditions—the most damning liability that any business or any property can have.

Hundreds of Cleveland owners have solved their pest problem permanently at a small monthly cost and give enthusiastic testimony for

THE A-C EXTERMINATING COMPANY
Chester at 17th Main 3338

THEY NEVER CAME BACK

And you never know why. Such a prosperous, promising couple—one-time patrons, or perhaps only prospects, for your store, hotel, restaurant or rented property.

They are gone beyond recall.

If it so happened that they saw roaches in your place, or perhaps a flitting moth, a shy slinking mouse, a hurrying ant, a pestiferous bedbug. If this was so—and you knew it—the mystery would be explained.

But you can only guess.

Before somebody else walks out on you, call Main 3338 and arrange for a regular, economical exterminating service — something that will rid your premises of pests and KEEP them rid. Hundreds of Cleveland property owners, with factories, stores, hotels, restaurants and apartments—yes and homes—are glad to testify to the feeling of relief that results from the regular visits of the A-C service man.

THE A-C EXTERMINATING COMPANY
Chester at 17th Main 3338

ARE YOU MAKING *PETS* OF THEM?

If you are, it is your most expensive hobby, something that costs you money

(Continued on page 15)

every time it comes to the attention of your patrons.

In parts of India, all animal life is venerated on religious grounds. But what American wants to qualify as a Hindu?

Our candid economic advice to one and all is to keep a canary, a police dog, a string of polo ponies or even a woman. In such matters you can judge the cost.

But giving food and shelter to mice, rats, roaches, moths, ants, bedbugs—hits your revenue and your reputation in ways you never heard of.

If you are too sympathetic to deal with the situation, call Main 3338 and one of our hard-hearted operators, by systematic visits, will rid you of your undesirable pets and KEEP you rid of them.

THE A-C EXTERMINATING COMPANY
Chester at 17th Main 3338

Dies From Gasoline Burns

Ant Hill Eradication Attempt Fatal to Woman

Tulsa, Okla.—Burns received three weeks ago when gasoline she had poured into an ant hill exploded were fatal to Mrs. Donald Turinsky, 22, wife of a Bixby farmer. Physicians said her lungs were seared badly by the flames.

"He that is courteous at all will be courteous to all."

Locusts

American cotton growers fighting the boll weevil will sympathize with Argentine growers, attacked by vast swarms of devouring locusts, far worse than any weevil. The Argentine ministry of agriculture announces 10,000 tons of cotton devoured, 60,000 acres invaded.

Farmers fight the locusts by erecting walls of sheet iron or digging ditches, into which the locusts swarm, to be sprayed with gasoline and burned. Tons of the pests are thus destroyed, but victory is still with the locusts.

The Argentine government is well supplied with airplanes; they might help with the war against locusts. Still better, if prayer could bring it, a miracle like the one in Exodus, tenth chapter, nineteenth verse: "And Jehovah turned an exceeding strong west wind, which took up the locusts, and drove them into the Red Sea; there remained not one locust in all the border of Egypt."

When you read that locusts have devoured 10,000 tons of cotton in a few days, you realize the importance of frequent warnings from scientists that man's most dangerous enemies, the insect tribes, might some day wipe out the human race.

Nature's dreadful fecundity might make useless all that man could do.—K. C. Journal-Post.

"He that will not be counseled cannot be helped."

Water Hemlock Seen As Poisonous Plant

San Francisco—The research workers on the Federal Writers' Project who are compiling an 8-volume guide book of the United States have completed the list of "Lucrezia Borgia" plants in California.

The most poisonous plant in the state, for both man and beast, they have found is the water hemlock. It is also one of the most alluring from the standpoint of fragrance.

It is this odor that lures unsuspecting animals to browse upon it. If placed in the window of a house until its perfume penetrates the latter, the entire family will develop headaches.

Rat Ties Up Traffic

Dallas—It was the "daring young rat on the flying trapeze" at Dallas, when an adventurous rodent tied up traffic for more than five minutes, crossing a wire between two telephone poles near the business district.

Insect Pest Plays Havoc

Berlin—It is estimated officially that insects destroy every fifth apple, every tenth grain of wheat, every twelfth bean and every thirteenth potato grown in Germany.

"Charity gives itself riches, covetousness hoards itself poor."

CHEMICALS

SPECIALLY PREPARED for EXTERMINATING WORK

Fluffy Sodium Fluoride 95/97%
DeHaen's Imported or Domestic.
White and Tinted.

Rumetan (Zinc Phosphide)
For Rats, Mice and Mole Crickets.

Thallium Sulphate
Valuable Formula Hints on Request.

Sodium Arsenate C. P.
For Ant Extermination.

Deodo
Special Odor for Kerosene Sprays.

No-dor
A Chemical Odor Killer.

TECHNICAL MEMORANDA ABOUT THESE AND OTHER EXTERMINATING PRODUCTS GLADLY SENT ON REQUEST.

PFALTZ & BAUER, Inc.
EMPIRE STATE BLDG. - NEW YORK

UPHOLSTERY
deep, dense, difficult
is easy for LARVACIDE CHLORPICRIN REGISTERED

● No upholstery is too deep or dense — no trunk too tightly packed — for Larvacide to penetrate. ● No cracks in walls, floors or furniture afford safe refuge for the retreating enemy. ● Larvacide kills the insects, sterilizes the eggs so they won't hatch out later, drives out rodents, so they soon die, but never between walls or floors. ● Larvacide is easy to use. No heavy equipment to lug around. ● Safer, too, for no one unprotected can enter or stay in dangerous concentrations. ● FREE — Illustrated Bulletin on SAFER HOME FUMIGATION. Write

INNIS, SPEIDEN & CO.
117 Liberty Street • NEW YORK
BOSTON - CLEVELAND - CHICAGO - PHILADELPHIA - KANSAS CITY

Preliminary Tests With Liquid Bait in Japanese Beetle Traps

Contribution from the Japanese Beetle Laboratory, Moorestown, N. J.

By F. W. METZGER, Associate Entomologist U. S. Bureau of Entomology
Assistance Rendered by W. E. Fleming, E. G. Rex and W. W. Maines

THE usual bait for Japanese beetle traps loses its effectiveness upon exposure in the field. In an attempt to devise a bait which would maintain maximum attractiveness for the beetle over a considerable period of time, geraniol and eugenol were vaporized by means of wicks of various lengths placed in small bottles containing the attractive agents. The results indicated that when certain sized wicks were used in two types of traps more beetles were captured than in check traps containing the bran-molasses bait with the attractants added.

The most satisfactory bait generally used in Japanese beetle traps consists of a mixture of geraniol, eugenol, bran, molasses glycerine and water. Geraniol and eugenol are, however, the substances which attract beetles to traps, the other materials comprising the bait being included for convenience in mixing, preservation of moisture and, generally, as a satisfactory carrier for the attractants. This bait, although very effective in drawing beetles to traps, is bulky and, upon exposure in the field, gradually decreases in attractive power as the geraniol and eugenol are vaporized.

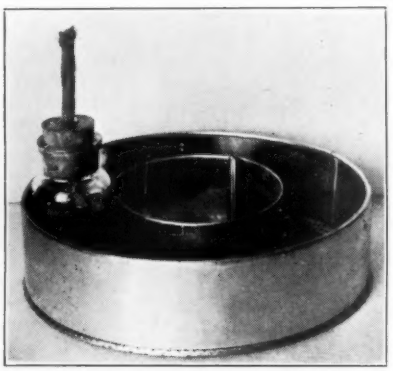
In an effort to devise a bait which would be of constant maximum attraction to the beetle over a period of several weeks, geraniol and eugenol were vaporized by means of a wick inserted in a bottle containing the attractants. This method had previously been considered by Van Leeuwen in 1928. Numerous tests were conducted during the summer of 1932, the wicks being employed in the trap where the bait container is located in the trap cylinder and also in a new type of trap where the cylinder is eliminated, the bait being placed in a container situated in the trap baffle.

Ordinary wicking for alcohol lamps was employed in all tests, this being inserted through a cork into a one-ounce bottle. The portion of the wick within the bottle was without a sheath. Geraniol was used at the usual rate of 10 parts to one part of eugenol.

The standard method of testing different types of traps and bait was employed in which each trap with liquid bait was located two and one-half feet from the check trap containing standard bait. Five such pairs of traps were used in each test with an interval of 10 feet between pairs.

Liquid Bait in Standard Traps

Wicks were used in the following lengths in this series of tests: Four inches sheathed, 2 inches sheathed, and 1 inch with and without sheath. Wick measurements in each instance represents the actual area exposed and does not include the length contained in the bottle. Longer wicks were not employed because there was no convenient way by which they could be supported in the trap cylinder. Without support, wicks of this type toppled over and, coming in contact with the bottom of the container, siphoned off the contents of the bottle.



Japanese Beetle Trap

The results of these tests are summarized in Table 1.

TABLE 1

Summary of Beetle Collections From Standard Traps With Liquid Bait

Wick length	Experimental traps No. beetles	Check traps No. beetles	Per cent increase or decrease, experimental over check
4″ sheathed	55,770	43,975	+26.8
2″ sheathed	38,965	36,414	+ 7.0
1″ no sheath	75,620	83,575	— 9.6
1″ sheathed	12,750	14,300	—10.9

A study of the above table reveals that the greatest increase in beetle catch over that from the check traps occurred when a 4-inch wick was employed, the difference in favor of the liquid bait being 26.8 per cent. The attractants were vaporized at the average rate of 2.2 grams per trap per day during 8 days in the field. When a 2-inch wick was used an insignificant increase over the checks resulted, but in this test geraniol and eugenol were vaporized at a slower rate, the amount being 1.07 grams per trap per day over a 31-day period. In both tests with the 1-inch wicks there was a decrease from the checks in the number of beetles caught and the attractants were volatilized more slowly than with the longer wicks.

Liquid Bait in Traps With Bait Containers Located in the Baffle

The traps used in this test are representatives of a group wherein the cylinder was eliminated and the bait located in a 6-inch shuttered container placed in the baffle. This series of tests illustrates the superiority of the liquid bait over the standard when used in traps of this general type. Wicks were employed in the following lengths: 5 inches sheathed, 3 inches and 1 inch, both unsheathed. The 5-inch length was attached to a hook located at the top of the bait container, but the other lengths were placed in the receptacle unsupported.

As the check traps had bait in the cylinders, it was necessary to conduct one test where each type was similarly in order to first calibrate the normal difference between the two types of traps. The data obtained from these tests are summarized in Table 2.

TABLE 2

Summary of Tests With Liquid Bait in Traps Without Cylinders

No. beetles traps Experimental	Wick length	Check traps No. beetles	Per cent increase or decrease, experimental over check
5″ sheathed	58,430	44,700	+30.7
3″ no sheath	86,380	76,030	+13.5
1″ no sheath	22,800	28,900	—21.1
Standard bait	66,982	56,963	—17.5

As indicated in the above table, the increase over the check traps when 5-inch sheathed wicks were employed was 30.7 per cent. Standard bait used in this type of trap gave an increase of 17.5 per cent over the check traps, which leave a net increase of 13.2 per cent in favor of the liquid bait over the bran-molasses mixture. During the 30-day period of the test, the average amount of geraniol and eugenol vaporized per trap per day from the experimental traps was 0.55 grams, as compared with 1.07 grams from the 2-inch wick in the cylindrical trap in the test mentioned above, while the difference in the number of beetles captured was 6.5 per cent in favor of the former. The greater amount of the attractants vaporized by the shorter wick is attributed to the fact that the temperature inside the cylinder was several degrees higher than that in the shuttered container.

Cost of Liquid Bait

In 1932, the Japanese Beetle Laboratory prepared 3,000 baitings for standard traps at a cost of $.08758 each, including labor.* A larger quantity could probably have been made at a lower cost. In order to obtain the most effective results, this bait should be changed at bi-weekly intervals, making the cost $.17516 for a 4-week period. During a like interval a 5-inch wick in a shutter-type container dispensed 16 grams of geraniol and eugenol at a cost of approximately $.05. In the traps where the bait was placed in the cylinders the average consumption was 1.07 grams per day, or 29.96 for 28 days, which amounted to $.1056. A 4-inch wick used 61.6 grams and this amount of the attractants necessitated an expenditure of $.229, or considerably more than the regular bait for a similar period.

The wicking is comparatively inexpensive, but would probably have to be replaced each year. Bottles and corks, while involv-

(Continued on page 17)

*The cost of the various bait ingredients were as follows: Geraniol (87 per cent pure, aldehyde free, sp. gr. .879 to .882 at 20°C.), $1.50 lb.; eugenol, U.S.P., $2.00 lb.; molasses ((good table grade), $0.47 gal.; glycerine, C.P., $0.15 lb.; bran, $.0125 lb.

ing a considerable initial expenditure, would probably last over a period of several seasons, making the yearly cost very small.

The results from the tests with liquid bait appear promising. There are, however, several convenient methods of dispensing geraniol and eugenol which could not be tested because of the brevity of the beetle season. Further investigation of this problem is contemplated.

"Calling All C-a-r-s!!"

"Protect Beetle Traps" Is the Latest Police Order

A Deadly Invader From Japan Threatens the Verdure of Kansas City Lawns, Director Higgins Asserts

There's just no telling how soon something really big is going to turn up when you're a policeman, something international; not just the routine of toting collapsed citizens piggyback from lampposts to the black marias; not the usual: "Hey, who do you think you are?"

There was the different thing that interrupted the humdrum at police headquarters when Otto P. Higgins, director, summoned his lads to help fight the Japanese beetle, the Popillia japonica, if you wish for full names, the beetle that attacks fruits and foliage and upon which has fallen the wrath of an active department of agriculture in Washington. And our Kansas City gendarmery do not fail the call from their high command.

An Order for a Charge

"Up and at them, men; down with the Popillia japonica!"

There appeared in the police bulletin this, to-wit:

"Notice to commanding officers: Beetle or insect traps for scientific purposes are being placed in various localities throughout the city under direction of Mr. Clyde Graham, state department of agriculture, Jefferson City, Mo., Mr. O. K. Courtney, U. S. department of agriculture, plant quarantine, and Mr. Walter McCarty of Kansas City. Working together, these officials for the next two or three days will be installing these traps at points of vantage in parks, yards and gardens, public and private, with a view to ascertaining whether or not harmful and destructive beetles now infesting certain eastern states are appearing here.

"All police officers should and must inform themselves regarding this work and extend courteous and effective co-operation to Messrs. Graham, Courtney and McCarty.

Protection for Beetle Traps

"Once a trap has been installed, it shall be the duty of all police officers to give it protection and prevent its being molested or tampered with. Mr. McCarty is to be notified promptly in case a trap is damaged or destroyed. His address is 304 Huntington road. Telephone Hiland 3814."

Showup may mean a parade of such criminals as Chew-'em-up Pop, the Jap, the Stag, the Searcher, Bom-bom Bombardier, Squinty the Eyed Elater and Bert the Burier.

A call of the telephone number given for Mr. McCarty, the one who is to be informed if the beetle traps are found disturbed, led to F. W. McCarty, secretary-treasurer of the Standard Paper and Woodenware Company, who said:

"Walter McCarty? Oh, sure, he's my son. He's a sophomore at the University of Missouri. Yes, he has been looking for something to do and he got into this work with Mr. O. K. Courtney of the federal department of agriculture. They went out early this morning with a crew to set the beetle traps. Four hundred are to be set here, I understand. They're after the Japanese beetle and will wring his neck if they find him. I'm eager to hear my son tell all about his adventure helping the government and the state. Walter is an inspector, you see."

At his hotel it was reported Mr. Courtney had checked out. Probably out with the traps.—Kansas City Star.

BEETLES

Large beetles with headlights are included in nature's strange assortment of creatures in Central and South America. The Department of Agriculture entomologists have found the young of these beetles very valuable because they eat white grubs which seriously damage sugar cane. Full grown, the insects are so luminous as to light a dark room sufficiently for the reading of a newspaper. The headlights referred to are on the top forepart of the beetle's body, and consist of two luminous spots. There is, however, another luminous area on the under side of the insect, which is exposed when it is in flight, and throws a brilliant spotlight on the ground.

MOTHS
BED BUGS
offer no serious service problems when you use
LETHANE 384
ALIPHATIC THIOCYANATE SPRAY
POSITIVE ★ FAST ★ UNIFORM
RÖHM & HAAS COMPANY, INC.
Manufacturers of Chemicals
222 W. WASHINGTON SQUARE, PHILADELPHIA, PA.

THESE BUGS KNEW THEIR "STUFF"

THE bedbug, grown fat after an all-night feast on one of the human family, was crawling back and forth over a pillow in order to "reduce."

Close by a long-legged flea was playing leap-frog with a skinny louse, while a roach was trying to set a new record for the one-foot dash on the floor below.

"Look!" suddenly shouted the bedbug. "They're gonna give this room a shot of **CALCYANIDE.** That stuff made me an orphan when it killed my father and mother in that house yonder."

"This means curtains, by sinko," screamed the roach. "We gotta get movin' fast."

"Fie, you're yellow," a young flea taunted the roach. "I've dodged too many squirts and jumped over too many powder traps to be skeered."

"Flee with your life, you jumpin'-jack," yelled its mother. "The only way to escape from **CALCYANIDE** is to be out in the open, under the sky. Hop to it!"

"This is a lousy house, for a' that," murmured the louse, as it crawled quickly towards the outside.

Think of—**USE**—**CALCYANIDE** whenever you are called upon to exterminate bedbugs, fleas, clothes moths, book lice, carpet beetles, rats and mice. Incidentally, write us for particulars concerning how to insure success, in practically every instance, when fumigating for carpet beetles.

CALCYANIDE COMPANY
60 EAST 42ND ST. NEW YORK CITY

Additional Patents Relating to Pest Control

By DR. R. C. ROARK

EDITOR'S NOTE: *This service is provided through the Department of Agriculture for the purpose of bringing to the attention of those interested such matters that may be of assistance to the industry. The Department of Agriculture assumes no responsibility for the merits or workableness of any of the inventions mentioned. Copies of all patents can be obtained for 10c (no postage stamps) sent to the Patent Office, Washington, D. C. When placing orders be sure to note the number of the patent, the date, the name of the patentee and the subject of the invention.*

2,037,276 (April 14, 1936; appl. July 7, 1933). INSECTICIDE AND PROCESS OF MAKING SAME. Carl Sgonina, Henderson, Ky. An insecticide spray comprises the material from mixing water, a fatty acid, and tobacco extract embodying nicotine in the form of nicotine sulphate. Tobacco extract (formed from tobacco by treatment with hot water or by other known methods and containing from 1 per cent to 2 per cent nicotine), is first treated with sufficient sulphuric acid to convert all or a major portion of its nicotine content into nicotine sulphate. The extract is then concentrated under vacuum to a density of 38 to 40 degrees Baume, and to this concentrate is added fatty acids in the proportion of approximately one pound of fatty acids to six pounds of concentrated extract. When this concentrate is diluted with water, using, for example, five ounces of concentrate to six gallons of water, a spray is formed which contains about .05 per cent of nicotine which has been found to be sufficiently effective for most spray purposes.

2,037,431 (April 14, 1936; appl. Aug. 3, 1934). FLY PAPER PROTECTIVE DEVICE. Thomas F. O'Connell, Dedham, Mass.

2.037,437 (April 14, 1936; appl. Nov. 11, 1929). XANTHATES. Ludwig Rosenstein. San Francisco, Calif.—American Cyanamid Company. The patentee claims as a new composition of matter, an alkali metal xanthate of a monohydric, aliphatic, unsubstituted, saturated secondary alcohol (e. g. isopropyl alcohol). These new xanthates of secondary and tertiary alcohols are useful as in flotation processes, for insecticides and as vulcanizing accelerators.

2,037,439 (April 14, 1936; appl. Sept. 6, 1929; appl. Germany, Sept. 11, 1928). FUMIGANT COMPOSITION. Hans Schrader and Erwin Bossert, Essen-Ruhr, Germany—Union Carbide and Carbon Corporation. A composition of matter useful as a fumigant is composed of a homogeneous mixture of liquefied carbon dioxide and at least one alkylene oxide selected from the group consisting of ethylene oxide and propylene oxide.

2,037,656 (April 14, 1936; appl. Sept. 16, 1932). SPRAY MATERIAL. John W. Roberts, Washington, D. C.—United States Government and People of the United States. A parasiticidal preparation, comprises the complex products of the reaction between zinc-lime, and lime-sulphur. For example, zinc-lime may be prepared by mixing 4 pounds of zinc sulphate (white vitriol) with 4 pounds of hydrated lime (calcium hydroxide) in 50 gallons of water. Then 1¼ gallons of lime-sulphur solution testing 33° Baume may be added. If desired, arsenate of lead at the usual strength may be added for the control of certain insect pests. The above-described mixture in fluid form when sprayed upon plants causes no injury and is toxic to parasitic organisms.

2,037,657 (April 14, 1936; appl. Sept. 16, 1932; divided and filed Dec. 30, 1935). SPRAY MATERIAL. John W. Roberts, Washington, D. C.—United States Government and People of the United States. A process of rendering injurious arsenical plant sprays non-injurious, comprises the addition of zinc-lime thereto. For example, zinc-lime composed of 4 pounds of zinc sulphate (white vitriol) and 4 pounds of hydrated lime (calcium hydroxide) in 50 gallons of water may be made. To this may be added colloidal sulphur, 4 pounds, and lead arsenate 1 pound. This mixture may be applied to peach trees in active growing condition without risk of injury, and, when applied at the proper times, will control those pests or parasites for which the separate ingredients are specifically toxic. Without the zinc-lime, the risk of severe injury to foliage, fruit, and young twigs is well known to be great. The zinc-lime frequently causes the leaves to be a deeper green and larger than those of non-treated trees and the fruit is frequently of superior size and color.

2,037,658 (April 14, 1936; appl. Sept. 16, 1932; divided and filed Dec. 30, 1935). SPRAY MATERIAL. John W. Roberts, Washington, D. C.—United States Government and People of the United States. A plant spray comprises zinc nitrate and lime. For example, when 4 pounds of zinc nitrate and 4 pounds of hydrated lime (calcium hydroxide) are mixed together in 50 gallons of water and applied to peach or apple trees, the trees so treated are protected from the invasion of parasitic organisms and the leaves, fruits, and other parts of the tree remain healthy and vigorous. When a tree or part of a tree is so treated the treated tree or part may be so affected as to show health and vigor noticeably greater than the non-treated, in addition to health and vigor brought about by the protective action against the invasion of parasitic organisms.

2,037,718 (April 21, 1936; appl. Nov. 9, 1932). XANTHATES AND METHOD OF MAKING SAME. George De Witt Graves, Wilmington, Del.—E. I. Du Pont de Nemours & Company, Wilmington, Del. The patentee claims a substantially pure xanthate of an aliphatic primary monohydric-alcohol containing from six to fifteen carbon atoms. They are effective as insecticides, particularly those containing about twelve carbon atoms in the molecule, e. g., dodecyl xanthate.

2,037,852 (April 21, 1936; appl Jan. 11, 1935). SCREWWORM FLY TRAP. Edward F. Dallar, Whigham, Ga.

2,038,068 (April 21, 1936; appl. Sept 7, 1934). TRAP FOR ANIMALS AND FOWLS. Charles Wagner, Loretto, Minn.

2,038,495 (April 21, 1936; appl. Jan. 5, 1935). ELECTRIC INSECT TRAP. August F. Keller, Philadelphia, Pa. This device electrocutes cockroaches and other insects.

2,038,719 (April 28, 1936; appl. Oct. 30, 1934). INSECT ELECTROCUTING DEVICE. Joseph K. Davidson, Rochester, N. Y. Reference is made to U. S. Patent 1,848,614 of March 8, 1932.

2,038,747 (April 28, 1936; appl. Dec. 8, 1933). SPRAY PUMP. Roy M. Magnuson, San Jose, Calif.—Food Machinery Cord, San Jose, Calif.

National Association Notices

Members are urged to call on each other, especially when traveling about the country. A permanent office is not required, but for those firms visiting New York City, it is urged that the secretary be called at either South 8-4116 or South 8-4120 and appointment will be arranged.

Cleveland—October 26-27-28: Enthusiasm is running high. Are you coming? Remember that the convention invites all firms of the industry to attend regardless of membership in any organization.

New Members: The important prerequisite is QUALITY. Size of the firm is not the important factor. There are many "one-man" firms who should not lose time in making application so as to be kept informed. Dues are on a fiscal year basis. Regardless of when a firm is passed by the Membership Committee during the year of 1936, the full amount of $10.00 dues prevails. There is no pro rata basis. Those interested are urged to communicate with the secretary at 3019 Ft. Hamilton Parkway, Brooklyn, N. Y.

Small and Large Cuts of the Seal: If you are not using these on your letter heads and other general advertising, we urge that you begin immediately. Send $1.00 to the secretary today before you forget it.

LOCUST

A new defense has been devised against the cicada or seventeen-year locust which is ravaging the East Coast of the United States this summer. Cecil W. Wood, a commercial orchardist of Moundsville, W. Va., has wrapped 5000 3-year-old pear trees in cheese cloth to protect them from the egg-laying female cicada. This seems to be what really does the damage to the trees, as the male merely looks on while she makes a narrow slit in the bark of twigs, and there deposits her eggs. The hatching process usually ruins or greatly deforms the limb. This wrapped-up pear orchard looks like nothing ever seen before. Women did the work, and they ballooned approximately a square yard of cheesecloth about the trunk and branches of each tree. The gauze was fastened by means of clips. More than 6000 yards of cheesecloth were used in wrapping 5000 trees, and the total cost is estimated at 5 cents a tree.—Youth Instructor.

"Never mourn over the past or mope over the future."

War On 'Hoppers Urged

Nine States Are Menaced by Invasion of the Pests

Threat to Midwestern Crops Is Described as the Greatest Since 1931-32 Plague —Federal Funds Are Sought

Des Moines, Ia.—The worst grasshopper infestation since the "plague" of 1931 and '32 threatens midwestern crops, an agricultural survey disclosed.

With newly-hatched 'hoppers already swarming over grain fields in sections of Iowa, Nebraska, Kansas, Oklahoma, Missouri, and Montana, spotted infestations were reported also in parts of Illinois, Wisconsin and Colorado.

(Topeka sources scouted reports of any serious grasshopper infestation in Kansas.)

Recalling the devastation to corn and small grain by the insect hordes four years ago, H. C. Aaberg, assistant Iowa secretary of agriculture, asked that state's congressmen to join other midwestern legislators in demanding a 2½-million-dollar federal appropriation. Nebraska also has besought assistance.

Aaberg proposed the funds be used over a 2-year period to provide farmers poison bran mash. It is spread over the fields to kill the pests and is the only effective control measure, according to entomologists.

Iowa's supply of mash, purchased with funds from a previous appropriation, is exhausted, and authorities estimated from fifty to seventy-five carloads would be needed this year.

The infestation extended over the eastern two-thirds of Kansas with early crops and alfalfa suffering. Chinch bugs also were causing damage to small grain and moving into the corn fields in the east and south-central counties.

In Oklahoma the 'hoppers were sweeping over pastures, grain sorghums, corn, alfalfa and some cotton.

Northern Missouri Is Hit

'Hopper Damage Also Reported in Some Southwestern Counties

Columbia, Mo. — Dr. Leonard Haseman, head of the entomology department of the Missouri university college of agriculture, said grasshopper infestation in Missouri was not as heavy as in some of the northern states.

It probably is worse than in the scourge of 1931-32, he said, but is not as bad as he has seen it in his thirty years of observation.

The infestation, Dr. Haseman said, is particularly heavy in the northern part of the state, with some southwestern counties also affected.

He described the infestation as spotty—occurring particularly on farms where there was waste land last fall. The insects lay their eggs in open fields.

Damage would be greater, Dr. Haseman said, if dry weather continued to reduce the hardihood of plants.

Great Damage By 'Hoppers

Fields in North Missouri Are Stripped.

Bethany, Mo.—Grasshoppers in numbers not matched in Harrison County for many years are beginning to create serious crop damage.

Robert Frame, farmer near Bethany, said they were so thick on his mowing machine sickle when he was cutting alfalfa that the sickle itself could hardly be seen, and he anticipates they will destroy the second cutting of the crop by feeding on the new and tender shoots. One field of navy beans was destroyed excepting the stems and the tougher fibers.

The hoppers are now about half an inch long, and in many spots at or near their hatching grounds, appear in swarms when they are disturbed.—Kansas City Star.

What We Need

By Guy Kirch

This touching little poem tells the story.

a little more tenderness
a little less creed
a little more giving
a little less greed
a little more we
a little less i
a little more laugh
a little less cry
a little more flowers
to lighten life's load
and fewer on graves
at the end of the road

TO THE EXTERMINATING INDUSTRY

Feeds Ant Destruction From a "Wick" Outside the Tightly Closed Device . . . The Most Economical and Efficient Ant Destroyer on the Market . . . Safe Around Children and Pets . . . Unsafe for Ants.

Write for Further Information

ANT-B-GON PRODUCTS CO.,
2016 BELLEVUE AVE., LOS ANGELES

U.S. Bureau of Mines approved for protection against nuisance dusts...the
M·S·A Comfo RESPIRATOR

For dusty jobs, here is real protection plus unusual wearing comfort. The popular MSA Comfo Respirator weighs only a trifle over 5 ounces; has extremely low breathing resistance, high filtering efficiency and long filter life; adjusts easily and does not hamper vision; costs less to maintain. For full details, write for Bulletin CR-3. **Note: The Comfo Respirator is not approved for protection against poisonous fumes or vapors.** For such service, use an MSA Gas Mask. Information and demonstration on request.

Mine Safety Appliances Company
Braddock, Thomas and Meade Sts.
Pittsburgh, Pa.
District Representatives in Principal Cities

Local Organization News

California Association

Important Insurance Notice: Members ask your insurance broker to include the NEW RATE of $5.90 — that has just been established for termite control. Listed under classification No. 0102. Now it is up to the members in the industry to reduce this rate by not permitting accidents to happen. Protect the men that work for you.

Doing things is a habit of our good friend Bill Buettner, secretary of the National Association. By his deeds you will know him.

Warning to Members: Checkups are now being made on all operators as to contractor's license, compensation insurance, building permits, and city licenses. Better be safe than sorry.

Guarantees: Some one once said in open meeting that there was "no such thing as 'Guarantee' when applied to insects and pests." And when we turn to Webster's dictionary and find that the word "Guarantee" means: "To promise or warrant the performance of," we begin to believe that the experienced member knew what he was talking about.

Cooperation: There is no substitute for organized action, and whether you like your competitor or not, you can easily cooperate with him in your common interests—and, you will find him a fine fellow, too. It will pay dividends if you will only cooperate as "big business" does.

Let's See It! That is just exactly what Charlie Kays, owner of Termite Service Co., 1020 N. Madison, Avenue, Los Angeles, and scientific photographer likes to do, and then take a picture of it. Charlie has a wonderful collection that you can buy at a very reasonable price—and they make selling so much easier.

Are you keeping records of each client that you do pest control work for? Do you constantly develop a friendly relation through correspondence, personal visits, or by some other method? They will be "talking advertisers" for you if you will but treat them right in your business dealings, and encourage a spirit of helpfulness with them.

The Contest Is On - Illinois vs. California. Norman Dold, worthy President of the National Association, living in Chicago, Ill., has challenged Jess Miller, Regional Vice-President of the National Association, living in Hollywood, Calif., to a contest for new members within their respective states. Each is to act as chairman, and contest to close October 26, 1936, at the National Convention in Cleveland. Now, Jess says that every member is a committee of one to "get that man" or else this man Dold will have his generals push one over on us—and, fellows, this would be bad. Now is the time to act.

Food for Thought: Any fool can pull down and destroy, but it takes a clever man to create and build up.

Standards Committee: Chairman George A. Rader, 1219 Oxford Avenue, Berkeley, desires all members to send to him AT ONCE a copy of the present Inspection Form now in use by us, and any suggestions that you might have to offer for his committee to consider. Wake up, fellows, George means business, so let's not say, "Let George do it."

Organization: Before the Panama Canal could be built, it was first necessary to conquer an insect. Organization of pest control was essential—and you know that it must have been done. Just think what we could do in the United States if all operators would join hands and work for the betterment of service to the public—who, after all, is your paymaster.

Caravan to Cleveland: Along with our good Prexy Wilbur and wife, now come our energetic Vice-President, George A. Rader, and wife, and announce their intention to attend the National Convention at Cleveland, October 26, 27 and 28. Come on boys, speak up. Now is the time to decide.

Pest Control Operators can render a vast service to themselves and to their industry by a little attention to the importance of a good reputation.

National Importance: Just forget to order the book from the Modern Exterminator Systems of Newark, N. J. Save the $2.50—or, if you must spend it for a good cause, just send it to E. A. Roberts, state treasurer, to apply on next year's dues.

The "Steam Roller" Is Coming: Have you heard the noise? Be sure, if you do, to report to Chairman W. B. Tanner, 6063 Sunset Boulevard, Los Angeles, Calif., any authentic news or reports that you hear in regard to WPA (or any other alphabetical arrangement) project, survey, or what have you, that is being done or contemplated in pest control work. We must have your support in this matter if we are to stop this "BIG MACHINE."

Did you ask your friendly competitor to join your association? Now is the time for him to join in order to get the full benefit of this year's dues, and the advantage of the NEW INSURANCE RATES now available to MEMBERS ONLY. Applications will be mailed anywhere, any time—just ask for them.

State Convention Chairman R. B. Loibl, Sr., 2016 Bellevue Avenue, Los Angeles, is now forming his committee for the third state convention to be held at San Jose, February 12-13, 1937. Now is the time to plan for it.

Termites vs. Government Geologists, by Charles Kays, will be found in the June issue of the Exterminators Log. Order a copy of it now from 512 East 14th Street, Kansas City, Mo.

Notice to You: If, perchance, you do not receive your copy of the monthly bulletin regularly on or before the 15th of each month, please write to Jess Miller, 1631 N. La Brea Avenue, Hollywood, Calif., and a copy will be sent to you.

CLEVELAND

The Convention City

October 26-27-28

A Few of Its Beautiful Scenes

Federal Reserve Bank

Shaker Square

Picked Up From Here and There

Albert M. Akers, as chairman of the committee on advertising and booth exhibit space for the annual convention of the National Association of Exterminators and Fumigators, is a busy man these days as he takes care of the manufacturers and supply houses. Those who want to have choice locations should write immediately to Mr. Akers at 2122 East Second St., Cleveland, Ohio.

Talking about the convention reminds us that Larry McKenna and his committee are busy with the entertainment features and promise a few surprises. We also know that Mrs. R. W. Laing and her committee have surprises in store for the ladies. Did we hear something about Arthur Srebren of Murray-Nickell & Co., and the favors?

"There Is No Substitute for Knowing How"—such was the title of an advertisement that appeared in Fortune Magazine. This motto might well be hung over the desks of many exterminators.

Will someone explain "impregnation of lumber" in connection with doing termite work? Possibly "injection" might be a better term to use, and if one wants to be more truthful it might best be admitted that this process amounts to nothing more than glorified spraying.

What was Bill Stover doing at the Book-Cadillac Hotel of Detroit, when a sudden urge came over him to send an air mail letter?

"Doc" Wilson was recently reported as being in Cleveland and a dinner party followed with "Bob" Laing and Pat. The story goes that the convention to be held October 26-27-28 came in for much discussion. Big time assured all who attend.

Wow, but some of these exterminators are always moving, and possibly the slang should be carried a little farther by saying that some firms have apparently "folded up." The secretary of the National Association recently reported that in connection with a general service letter to the entire industry, there were seventy-five changes in addresses and others reported as going out of business.

H. A. Browning Lumber Company of Los Angeles, Calif., have moved to their combined warehouse and office, 5959 South Riverside Drive.

Mr. S. M. Klopper, formerly of 4424 Winona, San Diego, is now located at 5719 Adelaide Avenue.

Having built up a reputation for service, of which it is justly proud, the Chemical Service Corporation, 101 East 19th Street, New York, on June first, began its sixteenth year of purchasing surplus finished and raw materials, as well as developing markets for industrial wastes, residues and sludges of all kinds."

T. Raley of Getz Exterminator, Inc., of St. Louis, stopped a few days to visit the Kansas City branch, and while here had a very pleasant visit. Tom said things were going along nicely and expected to do more visiting to his branch offices in the South. More power to you, Tom.

A letter was received from our good friend and member, Bill Martin, stating that his brother-in-law passed away on the ninth of June. We were sorry to hear of his brother-in-law's death and we extend our deepest sympathy.

So Live, that when You come to Die even the Undertaker will be sorry!—Mark Twain.

A man can be pretty accurately measured by the size of the thing that makes him angry.

Sell Odorless · Safe
FUMIGATION with

HERE'S A MODERN METHOD that has none of the hazards of poisons commonly used, but is thoroughly effective and will not tarnish metals, discolor paint nor cause varnish to check.

Proxate is a fumigating gas that is particularly penetrating and quick acting. The only equipment required is a copper tube with nozzle and an electric fan for circulation. Though deadly to all stages of insect life from egg to adult, it is not dangerous to human life in the manner used. Does not leave lingering odors nor endanger occupants of adjacent premises. Non-inflammable and non-explosive.

Write for Proxate Fumigation Booklet.

THE LIQUID CARBONIC CORP.
3100 SO. KEDZIE AVE., CHICAGO, ILL.
Branches in 37 Principal Cities of the United States and Canada
London, England ♦ Havana, Cuba

PROXATE

SHERWOOD PROTECTS
INSECTICIDE MANUFACTURERS
WITH THESE GUARANTEES:

Di-Bug Pyrethrum Extract No. 20

Guaranteed average minimum kill, 75-80%. (Peet-Grady Method.)

Guaranteed free from odors except the pleasant Pyrethrum scent.

Guaranteed to be manufactured by the cold process, exclusively with our

Spraysene

The scientific insecticide base, free from kerosene odor.

Di-Bug Finest Impalpable Pyrethrum Powder

Made from selected Japanese Flowers. High Pyrethrin Content — High Kill.

ALL DI-BUG PYRETHRUM PRODUCTS are chemically and biologically tested.

Write for Detailed Information

SHERWOOD PETROLEUM CO., Inc.
BUSH TERMINAL - BROOKLYN, N. Y.
(Refinery - Warren, Pa.)
Stocks carried in principal cities

Kansas State College Attic Used as an Insect Experiment Station

Two Thousand Shoe Boxes Contain Species of Grasses Collected From All Parts of State

MANHATTAN, KAS. — (Special)—Two thousand shoe boxes, as neatly arranged as if they were in a shoe store, are piled high in an attic of the Kansas State College for an experiment being conducted by the department of entomology for the benefit of Kansas farmers.

The experiment was begun last September and is nearing completion. It is being performed to determine what insects winter in grasses and the extent of their damage.

Thirty-seven species of grasses from 90 Kansas counties are in the boxes. Most of the grasses were collected by Prof. D. A. Wilbur on a grasshopper survey trip last September and October. Other grasses were sent in by specialists on other surveys.

Put in Shoe Boxes

So the grasses might have the same conditions as they would normally have in their natural habitat, they were placed on the roof of Fairchild hall during the winter months, after being identified by Dr. F. C. Gates of the department of botany of the college.

The grasses were taken from the roof early in April, placed in shoe boxes, and a glass test tube inserted in one end of each box. The boxes were then moved to an attic of the same building and placed so the test tubes might catch the radiation of the sun through the attic windows.

As the insects hatch, they crawl into the test tubes seeking the light and warmth of the sun. At the close of each day, each tube is emptied and the contents mounted and identified. Parasites are the first to appear, followed by the more injurious insects which attack stems of the grasses.

Major Crop Grasses

There are important reasons for conducting the experiment. In the first place, nearly all the important crops of Kansas are grasses. Potatoes, flax and alfalfa are exceptions. Almost all the important pests in Kansas are associated with the grass lands—the white grub, grasshopper, chinch bug, cutworm and others. All these live in pastures and grassy waste lands.

Most of the insects injuring grasses are of the genus Harmolita, small wasp-like insects which work in the stems. Some cause warty galls, others destroy the flowering head, while still others weaken the stems to the extent that they break over. Some do no injury.—K. C. Journal-Post.

It's a wise man that does not waste time in regrets of Yesterday.

"Beware of borrowing; it bringeth care by night and disgrace by day."

Fear Moth Plague

Caterpillar Stricken Area Hears Bad News

SUDBURY, ONT.—Residents over a 175-mile front in this Northern Ontario district heard with dismay that a scourge of moths may follow the caterpillar which already has caused untold damage.

Agricultural experts warned that the possibility of a moth scourge was strong. They pointed to the fact the forest tent caterpillars now swarming over the district in millions would soon spin cocoons from which they eventually will emerge as moths.

As the hordes of insects traveled across an area estimated at 8,000 square miles, stripping foliage from trees, terrifying livestock, threatening severe losses of crops, crawling over houses, stopping trains and making highway travel dangerous, farmers frantically discussed methods of stemming the tide. Apparently the plague is at its heighth. Government officials admitted they were unable to suggest any effective method of stemming the scourge.—K. C. Star.

Business Opportunities

(Classified)

RATES — For individuals seeking employment, 5c per word, minimum $1.00. All others 10c per word, minimum $2.00. All advertisements must be in the hands of the publishers seven days before publication date and must be accompanied by cash or money order for payment in full. The publishers are not responsible for any false or misleading advertisements.

RUBBER POWDER BLOWERS

MANUFACTURED BY

CITY EXTERMINATING CO.

607 N. WELLS ST. - CHICAGO, ILL.

$5.00

per dozen, prepaid anywhere in the U. S. $5.50 in Canada.

Holds 3½ ounces of powder. Wonderful for getting under sinks and crevices.

CUTS—It Pays to Illustrate

Write for Prices and Information

THE EXTERMINATORS LOG, Cut Dept.

512 East 14th St. Kansas City, Mo.

WRITE FOR FREE BULLETIN ON TERMITE CONTROL

The rapid spread of the termite and its enormous destructive capacity have opened up a new business opportunity for exterminators — in fact, a volume business greater than any past opportunity.

A NEW AND PROFITABLE MARKET

This new business is entirely additional to present extermination work and is sold in larger and more profitable jobs. The work is handled through professional exterminators. Write at once. Get the facts now. Our free scientific bulletin tells how to get started in this profitable business.

WHEATON CHEMICAL COMPANY

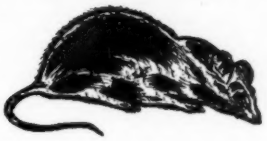
LANSING, MICHIGAN

Patronize Our Advertisers

They Make This Journal

Possible

15c PER POUND IN ONE-POUND TIN CANS



A Non-Poisonous Rat Killer

For Safety, Effectiveness and Economy

USE SUR-RID RAT KILL

Try It—It Saves Time and Money

★

SUR-RID RAT KILLER

is tested in our own laboratory on both wild and tame rats and we GUARANTEE the Killing Power.

SUR-RID Rat Killer contains meat, cereals, vegetables and just the right amount of a tested killing agent. It is especially appetizing to rats and mice as there is only an odor of fresh meat and vegetables and there is no raw odor of chemicals; three distinct lures, MEAT, FISH and CEREAL, packed either assorted or of one kind to a case, which contains three dozen one-pound cans.

Due to the increase in the sale of this Rat Killer, we are reducing the price as follows:

Three Dozen Lots, labeled	$2.00 Per Dozen
Gross Lots, labeled	1.90 Per Dozen
Gross Lots, no label	1.80 Per Dozen
The half-pound size, packed four dozen to a case	$1.25 Per Dozen

All Prices F. O. B. St. Louis

Also Packed Under Private Label

★

Real Exterminating Products Co.

1900-04 NORTH NINTH STREET

ST. LOUIS, MISSOURI

CIMICIDE

KILLS

CIMICIDE is a concentrated, Non-Poisonous preparation for the extermination of Cimex Lectularius — or Bedbugs. It was developed after a long period of exhaustive research and experimentation, both in our Laboratory and in the field, and has met with the approval of many of the most successful exterminators.

CIMICIDE is an organic compound and is not poisonous. It has a very pleasant and attractive odor not usually associated with insecticides, and may be used without objection by the most fastidious.

CIMICIDE will not spot, stain or injure any material and will not run paint or varnish or tarnish metals.

CIMICIDE is carefully compounded and controlled, assuring you that every gallon is of uniform strength.

Its killing power is high, it works fast.

Write today for samples and prices.

Murray & Nickell Mfg. Co.

2616 West Arthington Street

Chicago, Illinois